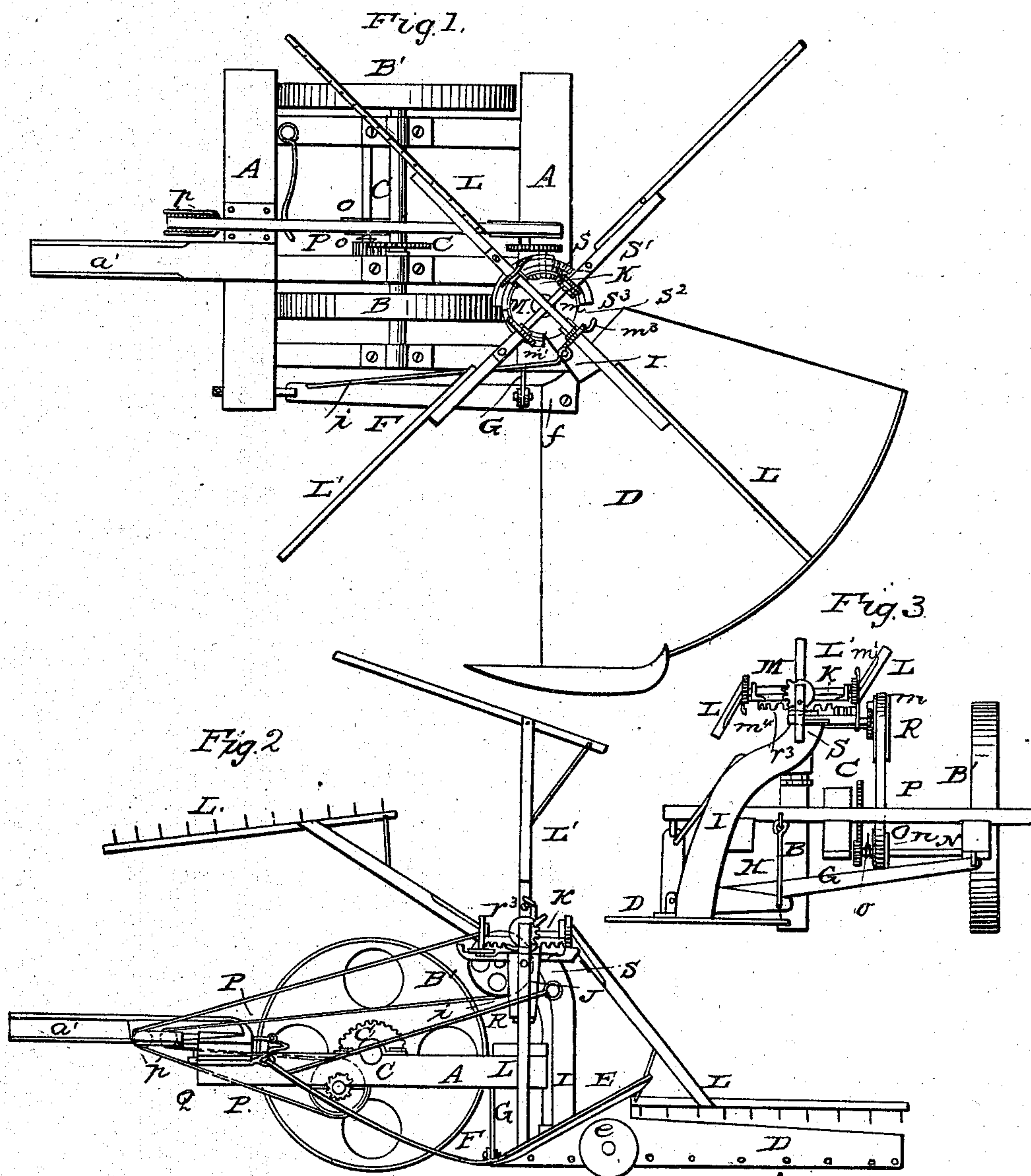


R. HOFFHEINS.

Harvester.

No. 35,315.

Patented May 20, 1862.



WITNESSES

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UNITED STATES PATENT OFFICE.

REUBEN HOFFHEINS, OF DOVER, PENNSYLVANIA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 35,315, dated May 20, 1862.

To all whom it may concern:

Be it known that I, REUBEN HOFFHEINS, of Dover, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Harvesting Grain; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a harvesting-machine with my improvements. Fig. 2 is a side elevation of the same with one wheel removed. Fig. 3 is a rear elevation.

Similar letters of reference indicate corresponding parts in the several figures.

My said invention consists in certain improvements in the manner of mounting and operating a revolving rake, as will be hereinafter more fully explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the main frame of the machine, and *a'* a portion of the draft-pole.

B is a driving-wheel secured to the axle C, and B' a wheel running loosely on the said axle.

D is a segmental platform, provided with a divider, E, at its outer end, resting upon a roller, *e*.

F is a draw-bar, connected at front by a universal joint to the frame A, and attached at back to a shoe, *f*, upon which the inner side of the platform may rest.

G is a lateral brace-rod, hinged at one end beneath the right-hand rear corner of the main frame and at the other to the draw-bar F or shoe *f*.

H is a link by which the inner end of the platform is suspended from the back of the main frame.

I is a post rigidly secured to the inner side of the platform, and inclining over the rear of the main frame.

i is a brace-rod extending from the draw-bar to the said post to support the latter at top.

J is a box mounted on the top of the post I, and constituting the bearing in which the disk K rotates. The rakes or reel-arms L L' are mounted in couples upon the ends of horizontal shafts M M', which are journaled at right

angles across the rotating disk K. The oblique positions of the rakes upon the shafts M M' are clearly shown in the drawings, and the manner in which they are elevated to pass over the frame and lowered to incline the standing grain over the cutting apparatus and remove grain from the gavels on the platform will be hereinafter explained.

c is a cog-wheel secured to the shaft C, and gearing with a pinion, *n*, upon a secondary shaft, N, which carries also a clutch-pulley, O, fitted loosely thereon, but rotating, when the machine is moving forward, by means of a pin, *n*, upon the shaft, taking into the notched teeth upon the face of the pulley O.

o is a spiral spring employed to hold the pulley in contact with the pin *n*.

A band, P, passes around the pulley O, over the tension-pulleys *p p*, at the outer end of a swiveled and yielding rod, Q, and around a pulley, R, journaled in a stationary segment, S, which is attached to the top of the post I, beneath the rake-head. Gearing *r r' r² r³* transmits motion from the pulley R to the rake-head K, rotating the latter in a horizontal plane. The segment S is formed with two concentric ranges of cogs, *s s'*, for elevating the rakes or reel-arms, and two concentric ways, *S² S³*, for supporting the same. The shaft M is provided at each end with a cogged segment, *m*, taking into the cogs *s*, and the shaft M with a cogged segment, *m*, taking into the cogs *s*.

m² are stops upon the shafts M M' to limit their rotation.

m⁴ are arms which pass between guide-flanges *s⁴*.

m³ are arms which rest upon the ways *s³*, to support the rakes L in their elevated position.

The cutting apparatus is not represented, and may be constructed and operated in any suitable manner.

The operation of the combined reel and rake is as follows: The rake-head K receives a continuous rotary motion from the belt P, as before explained. As each reel-arm approaches the rear of the main frame its cogged segment *m* takes into the cogs *s*, turning the reel-arm backward and upward completely over the frame, and causing the reel-arm, which is attached in front to the same shaft M, to descend at the side of the wheel, where it operates to

present and hold the standing grain to the action of the cutters, and so passes over the platform. By the time the last-mentioned reel-arm reaches the point to be elevated over the frame the first has advanced so far as to pass off the way S^2 and descend clear of the wheel, and so the work progresses. In like manner the rakes L operate first as reel-arms, and passing backward in contact with the platform remove therefrom all the grain that has collected and deposit it in a gavel upon the ground. On passing off the platform the rake is held and guided by its short arm m^4 , passing between the flanges S^4 , and its cogs m' are thereby presented in correct position to the cogs s' , by means of which it is elevated, as above described in reference to the reel-arms. The elevated rake is maintained by the short arm m^3 resting upon the way S^3 , until it has passed around sufficiently far to descend clear of the wheel B . The supporting-arm m^3 then leaves the way S^2 , and the rake is carried down by the ascent of that attached to the opposite end of the shaft M' .

The present illustration shows two rakes and two plain reel-arms. It is obvious that any even number of arms may be employed, and as many may be provided with teeth as preference or the nature of the work may dictate. Two analogous devices have been described for elevating the arms. Either of these, or any other substantially equivalent device, may be adopted, as I do not restrict myself to the specific means described for accomplishing this result.

It will be seen that the platform is so attached and supported as to permit it to conform with the utmost freedom to inequalities of the surface of the ground, and the standard

or post I , being rigidly mounted upon the platform, and inclining over the back of the main frame, supports the reel and rake in an unchangeable position in relation to the platform without obstructing the free motion of the latter in any degree. The spring q , bearing against the rear end of the rod Q , maintains the band P at an equal tension in all positions of the pulley R , and the swivel in the said rod permits the band to conform to the changing angle of the pulley as the outer end of the platform rises and falls. The reel and rake can thus operate with complete effect under all circumstances.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. A combined reel and rake rotating upon a vertical axis, and having its arms successively turned up into an inverted position to pass over the main frame, substantially as explained.

2. The inclined standard I , rigidly mounted upon a loosely-hinged platform, and employed to support a revolving reel and rake in an unchangeable position in relation to the said platform without obstructing the free motion of the latter.

3. The yielding and swiveled rod Q , operating in combination with the band P and pulleys O and R , in the manner and for the purposes herein shown and explained.

The above specification of my improvement in reaping-machines signed this 27th day of February, 1862.

REUBEN HOFFHEINS.

Witnesses:

OCTAVIUS KNIGHT,
JAMES H. GRIDLEY.